

Date: Wed, 23 Jun 93 09:15:44 PDT
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V93 #769
To: Info-Hams

Info-Hams Digest Wed, 23 Jun 93 Volume 93 : Issue 769

Today's Topics:

 6 Meter Telephone RFI
 [ANS] Wanted: Simple, Cheap, 2m antenna project
 Any readers from ZL out there??
Apollo & hams (was Re: 'If you believe they put a man on the moon'
 Bad ARSENREE Keps
 fragmentation of this group
 Mac Morse Software
Midland Power-Max Dual Band Antenna
 Summary: Making home Ham Friendly
 TM-742A extended rx coverage
 Transverter help?????????
 Which Rig To Buy?

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 22 Jun 93 12:07:41 EDT
From: psinntp!arrl.org@uunet.uu.net
Subject: 6 Meter Telephone RFI
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, seeler@UPEI.CA (David Seeler) writes:

>I have a quick question about 6 Meter interference to a telephone. I have
>the ARRL handbook and RFI book as well as the info from the server and I am
>slowly going through that information. I hope that the problem can be
>solved with the info that is there.

The RFI book and/or our EMI/RFI-Telephone package will lead you to a solution.

>Sun eve - was on 6 working Michigan stations when my neighbour
>came over and said that I was audible in two of their phones (they
>have 7 - hopefully not bad news).

Definately good news! This clearly indicates that the problem is in those two phones. Most likely, the addition of telephone EMI filters will cure things nicely. If not, at least you can point out that if 5 of the phones in the house do not pick you up, then something is clearly different (and inferior) about those two phones.

I don't know about the regulation in other countries, but here in the US the FCC is pretty much on the ham's side about telephone EMI. Page 18 of the FCC Interference Handbook clearly states that telephones (and a host of other audio devices) that pick up radio signals are improperly functioning as receivers.

I just did a post on the availability of our several EMI handouts. We also have a bunch of files on our server. Those having an active EMI problem should send a 9X12 SASE (3 units of postage) to our Technical Dept Secretary and ask for the EMI/RFI Package. We also have one on EMI/RFI-Telephone (plus a host of others).

>Has anyone found any particular filter or solution particularly helpful for
>6 meter or VHF RFI ? Suggestions are welcome.

The effectiveness of most telephone filters begins to roll off above 30 MHz. (The old Bell Z-100 or Z-101 filters rolled off above the AM broadcast band -- use the new Z100-ZB1 for HF.) K-Com, a regular QST advertiser, has a new filter designed for VHF. I recommend that you try that one first. I am looking for feedback on its effectiveness, so please let me know.

>I am also getting into their FM baby monitor (it operates at 49.99 Mhz)
>but I am less hopeul of solving that one due to its probable WIDE Front
>end - but will try.

Good call! FCC regs require that a label on the unit or in the owner's manual clearly spell out its status -- it must not cause interference, and if it suffers interference from other radio services it is not protected. Perhaps you could point to the label and let them be mad at the manufacturer who made it and didn't tell them. :-)

>My ground is about 3 meters from the rig (as close as I can get), on
>the same side of my house as the neighbour. Would a 1/4 wave counterpoise

>on the rig help?

Probably not. In most cases, the problem is caused by fundamental overload and the majority of your signal is coming from your antenna. Moving your antenna farther away (the top of a 200-foot tower?) would help.

As always, feel free to contact me here at HQ about an EMI problem that can't be solved by our literature or by your local experts (Technical Coordinator here in the US). I will see if I can offer some ideas or help.

73, Ed

Ed Hare, KA1CV
American Radio Relay League
225 Main St.
Newington, CT 06111
(203) 666-1541 - voice
ARRL Laboratory Supervisor
RFI, xmtr and rcvr testing

ehare@arrl.org

"The goal of every engineer is to retire without getting blamed for a major catastrophe." -- Scott Adams and Dilbert

Date: 22 Jun 93 04:59:35 EDT
From: psinntp!arrl.org@uunet.uu.net
Subject: [ANS] Wanted: Simple,Cheap,2m antenna project
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, jim@n5ial.mythical.com (Jim Graham) writes:
>In article <1993Jun21.141738.8573@porthos.cc.bellcore.com>

>Above the PVC pipe...I know PVC is a Bad Thing at HF, but what about VHF?
>Can you really get good results with it there? Or would a wooden dowel
>(see my post from yesterday on this) be a better thing to use?
>

I remember the April 1977 Hink and Kink by W1CKK showing a piece of melted PVC tubing that was used to support a vertical loading coil. It said that nylon and PVC are "extremely lossy".

But, is this really accurate? It has been pointed out that the mere fact that the stuff melts is **not** an indication that the PVC is causing high losses. Fact is, it doesn't take a whole lot of energy to melt PVC. On the other hand, melting a ceramic coil form doesn't happen all that often, even though I've seen a tuner that would make a nice space heater before the solder melted...

Keep in mind that losses in loaded HF verticals can be quite high, regardless of what material is used for the coil form. The PVC may melt even if it contributed no additional losses, simply because it is surrounded by hot wire. Anyone actually measure the additional losses caused by PVC?

Page 23-39 of the ARRL Handbook shows a helical antenna wound on 2 1/2 inch (2.875 actual) PVC for 1269 MHz. Is it cost effective? Probably. Would it smoke if you ran 1500 watts into it? I wouldn't be surprised.

Zack Lau KH6CP/1

Internet: zlau@arrl.org "Working" on 24 GHz SSB/CW gear
Operating Interests: 10 GHz CW/SSB/FM
US Mail: c/o ARRL Lab 80/40/20 CW
225 Main Street Station capability: QRP, 1.8 MHz to 10 GHz
Newington CT 06111 modes: CW/SSB/FM/packet
amtor/baudot
Phone (if you really have to): 203-666-1541

Date: 23 Jun 1993 11:17:55 GMT
From: comp.vuw.ac.nz!newshost.wcc.govt.nz!kosmos.wcc.govt.nz!
WALKER_CM@uunet.uu.net
Subject: Any readers from ZL out there??
To: info-hams@ucsd.edu

Peter - I don't know if this will be sent as a "posting" or email. Have yet to come to grips with the system. The only Amateur radio magazine in NZ is published by NZART (NZ Assc of Radio Transmitters). It's called "BREAK-IN" and has been around for longer than I can recall, probably 65 years or so. According to a recent issue, the overseas subscription to NZART, including Break-In, is \$NZ57.75. (\$NZ1-00 = about 35p).

You'll get full information from the General Secretary, P.O. Box 40-525 Upper Hutt, NZ. FAX (04) 528-2170. I don't know how many ZL's are on this net. I'm a newcomer. Propagation permitting, I work G3XJN each Monday and Thursday 0600-0700 GMT + - 14.185 My packet address is ZL2ALY @ ZL2WA NZL.OC

73. Cliff ZL2ALY.in subscribing to an Amateur radio magazine published in >New

>Zealand - preferably one relating to their National Radio Society. Can

>anyone tell me how to subscribe, prices, addresses etc and perhaps

>recommend a particular magazine, please.

>Many thanks - please post here if possible.

>73...Peter, G4BVH.

>

Date: 22 Jun 93 16:36:03 EDT
From: psinntp!arrl.org@uunet.uu.net
Subject: Apollo & hams (was Re: 'If you believe they put a man on the moo
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, rgm@is.morgan.com (Robert Maire) writes:
>I think the best evidence that we landed on the moon is the laser reflector that
was installed on the surface
>of the moon. It was left there so that we could accurately measure the distance
from the earth to the moon
>by bouncing a laser beam off this reflector on the moon.
>Though this device can't be seen by a telescope it can be "seen" by a high
powered laser.....

Evidence yes, proof no. The presence of human-made artifacts on the
moon doesn't prove that humans were ever there any more than the
presence of Voyager outside the solar system proves humans were *there*.

(Not that I doubt men were on the moon, but it *is* an interesting
discussion.)

Jon Bloom, KE3Z | jbbloom@arrl.org
American Radio Relay League |
225 Main St., Newington CT 06111 |

Date: 23 Jun 93 13:10:17 GMT
From: news-mail-gateway@ucsd.edu
Subject: Bad ARSENREE Keps
To: info-hams@ucsd.edu

It appears, based on field reports, that the NASA Set #8 (Epoch
159.17059438) for ARSENE is not accurate. The last valid set is
repeated. Due to the nature of this orbit, this set should not
require updating for several months or more. N3FKV

Satellite: ARSENE
Catalog number: 22654
Epoch time: 93145.00000000
Element set: 8
Inclination: 1.0950 deg
RA of node: 130.8800 deg
Eccentricity: 0.2939760

Arg of perigee: 137.2680 deg
Mean anomaly: 355.5380 deg
Mean motion: 1.42273540 rev/day
Decay rate: .000000000 rev/day^2
Epoch rev: 24
Checksum: 212

Date: 23 Jun 93 08:17:17 GMT
From: pacbell.com!amdahl!amdahl!ikluft@network.UCSD.EDU
Subject: fragmentation of this group
To: info-hams@ucsd.edu

brewer@anarky.enet.dec.com (John Brewer) writes:
> My newsreader reports that a bazillion little
> groups (Rec.Radio.Amateur.Coax.Connectors.PL.259
> seems like..) have been created.
>
> Did the vote count get posted somewhere that I missed?

Hmmm... now that you mention it...

Some sites may filter out articles which are cross-posted to what they consider "too many" newsgroups. (News admins can do just about anything they want with their systems.) The results were cross-posted to quite a few: news.announce.newgroups, news.groups, rec.radio.amateur.misc, rec.radio.amateur.packet, rec.radio.amateur.policy, and rec.radio.info.

That may have been enough to cross the threshold for some sites.

Since you pointed this out, I put a copy of the full text of the results, as received here at Amdahl, in the FTP archive on ftp.amdahl.com in /pub/radio/amateur/vote-results.Z.

Summary: (excerpt cut&pasted from voting results)

From: jmaynard@oac.hsc.uth.tmc.edu (Jay Maynard)
Newsgroups:
news.announce.newgroups,news.groups,rec.radio.amateur.misc,rec.radio.amateur.pac
k
t,rec.radio.amateur.policy,rec.radio.info
Subject: RESULT: rec.radio.amateur reorganization
Sender: tale@rodan.UU.NET
Approved: tale@uunet.uu.net, rec-radio-info@ve6mgs.ampr.ab.ca
Lines: 371

[...]

rec.radio.amateur reorganization results - 307 votes

Yes	No	: 2/3?	>100?	: Pass?	: Group
202	91	:	Yes	Yes	: Yes : rec.radio.amateur.digital.misc
179	110	:	No	No	: No : rec.radio.amateur.digital.tcp-ip
186	97	:	No	No	: No : rec.radio.amateur.dx
196	93	:	Yes	Yes	: Yes : rec.radio.amateur.antenna
197	97	:	Yes	Yes	: Yes : rec.radio.amateur.equipment
172	106	:	No	No	: No : rec.radio.amateur.instruction
175	108	:	No	No	: No : rec.radio.amateur.operating
194	93	:	Yes	Yes	: Yes : rec.radio.amateur.homebrew
204	88	:	Yes	Yes	: Yes : rec.radio.amateur.space
175	105	:	No	No	: No : rec.radio.amateur.emerg-services
142	125	:	No	No	: No : rec.radio.amateur.rdf

[...]

(">100" means yes outnumbers no by 100 or more. Someone asked about that after the vote-taker posted the results.)

--

Ian Klufft KD6EUI PP-ASEL Amdahl Corporation, Open Systems Development
iklufft@uts.amdahl.com Santa Clara, CA
[disclaimer: any opinions expressed are mine only... not those of my employer]

Date: 23 Jun 1993 14:26:22 GMT
From: mcsun!sunic!news.lth.se!pomona.tde.lth.se!sund@uunet.uu.net
Subject: Mac Morse Software
To: info-hams@ucsd.edu

New version of MorseTrainer (1.0.2) for Macintosh computers

Availability:
via anonymous ftp:130.235.32.86

MorseTrainer is a powerful tool for learning and training Morse code.

Features

- * Three different training modes: user text, random text, library text
- * Arbitrary signal pitch and timbre
- * Arbitrary speed and tempo
- * Multi-alphabet support
- * Random text generator

- * Text library editor
- * On-line alphabet
- * On-line manual
- * Help Balloons
- * And a lot more!

And of course, it's FREEWARE!

Lars Sundstroem, Department of Applied Electronics, Lunds University
P.O. Box 118, 221 00 LUND, Sweden, phone: +46 46 10 95 13
fax: +46 46 12 99 48, email: sund@tde.lth.se

>>>

Lars Sundstrom, Lund University, Dept.of Applied Electronics

P.O. Box 118, S-221 00 LUND, SWEDEN. EMail: sund@tde.lth.se

Phone: Int+ 46 46 10 95 13 Fax: Int+ 46 46 12 99 48

50\$ each. it was

real easy. call 800-555-1212 and ask for the Maxon number. call it,
ask for parts. The Maxon folks will tell you what they have but don't
have the specs handy. they take master card, visa and maybe one or
two others. Shipping is 3.50\$ processing takes 2 days and shipping takes
5-10 days.

now all I got to do is figure out how to adapt these ear mikes to my 2at
for bike mobile and my ft-290 for car mobile.

--- eric

--

HOME: esj@harvee.billerica.ma.us HAM kaleec

WORK: 617.630.4687 (w) esj@ruby.polaroid.com

source of the public's fear of the unknown since 1956

Date: Wed, 23 Jun 1993 13:10:33 GMT

From: usc!howland.reston.ans.net!ux1.cso.uiuc.edu!uchinews!spssig.spss.com!

feenix.metronet.com!marcbg@network.UCSD.EDU

Subject: Midland Power-Max Dual Band Antenna

To: info-hams@ucsd.edu

In article <C90yDI.HxJ@ms.uky.edu> hgpeach@ms.uky.edu (Harold Peach) writes:

>I recently finished installing a Midland Power-Max dual band antenna. (This
>antenna looks like a cellular antenna, is coupled through the glass, but
>operates on 2m/70cm.)

>

>The problem is that even with the antenna mounted in a manner far exceeding
>the installation instruction's specifications, it still has an SWR of 4:1!

>There are no adjustments possible and according to the directions, trimming/
>adjusting the antenna length will have little effect upon the SWR.

 \succ

>Anyone else been down this path? Any suggestions?

>73, Harold, N4FLZ

>hgpeach@ms.uky.edu

Well, the really important question is how does it work? Does it seem to perform well? Measuring SWR in VHF/UHF mobile installations is tricky at best. You can't measure it at the antenna, so you have to measure it at the diplexer or at the rig, which gives you perhaps an erroneous reading.

I've never been a big fan of window mount antennas, and especially the cellular look alikes (even the mag mounts leave something to be desired). However, if you're not getting a high SWR light or indication from your radio, and, if you seem to be transmitting and receiving OK, chances are your installation is OK.

If there's any way of measuring it at the antenna, you may want to look and see what it reads.

73.

— —

Marc B. Grant, N5MEI

P.O. Box 850472

Richardson, TX 75085-0472

Internet: marcbg@feenix.metronet.com

Telephone: 214-231-3998 (voice)

214-231-0025 (fax)

Date: 22 Jun 93 10:52:17 EDT

From: psinntp!arrl.org@uunet.uu.net

Subject: Summary: Making home Ham Friendly

To: info-hams@ucsd.edu

In `rec.radio.amateur.misc`, `greg@core.rose.hp.com` (Greg Dolkas) writes:

>Ed Hare - KA1CV (ehare@arrl.org) wrote:

```
>: I suggest that you destroy the resonance by installing a common-mode
```

>: choke at the GFI. These can be made from any #43 ferrite material,

```
>: using ferrite toroid cores at installation time, or split-bead
```

 \sim

```
>: ferrite cores (about 15 are needed for 15-meter operation) to correct
```

```
>: post-installation problems.
```

 \geq

```
>Ed, thanks for the information.  You've identified the major problem here,
```

>the need to do work best done at installation time *after* the walls are
>all up and the XYL has her wall paper installed.

>Since the 15 cores aren't likely to fit inside the outlet box behind the GFI
>plug, are there any other options (say, decouple the signals by plugging
>something into the outlet)?

Now we know why they don't make me an editor here -- I am not always
100% lucid in my write. (Neither are some editors, but saying that
to my peers here would be inflammatory . . . :-)).

For typical wiring, *one or two* FT-240-43 *toroids* will usually do the
trick. It actually might be possible to fit this into the wall
space near a GFI outlet, or at the circuit-breaker panel before a
GFI breaker. The usual difficulty is that there is not enough slack
wire to get several turns onto the core.

That is why I recommended the split-bead ferrites. They will fit over
the existing wire. The real difficulty is that you need so darn
many of them. You need about the same number as you would need
for a choke balun on an HF antenna (ARRL Antenna Book).

There are two problems with the decoupling approach. First, most
of the time the interference picked up on house AC wiring is
common-mode, meaning that it is picked up by all three wires (hot,
neutral and ground) in phase -- the wires act as if they were one
wire. Most AC-line filters do a good job filtering the two wires
(hot and neutral), at least in the differential mode (the signal
on the two wires are opposite in phase). However, they almost
always don't filter the common-mode signal, and they almost never
filter the ground. I have no real idea if the GFI is responding
to the common-mode signal, or what smaller amount of differential-
mode RF signal is being picked up by the house wiring.

Unfortunately, anything plugged into the outlet is being installed
after the fact -- the RF signal has already gotten to the GFI
circuitry and worked its deviltry. If, as is likely the case, the
signal is common-mode, even an AC-rated capacitor such as that found
in many AC-line EMI filters, across the hot and neutral may not be
effective. It is, however, something you could have your electrician try,
if local code permits. Please remind the electrician that ONLY filter
containing AC-rated capacitors should be installed across
AC power lines! Anything else would represent a real fire hazard!
When you consider that heat is indeed electromagnetic energy, you don't
want to trade your EMI problem for a worse one!

>My current solution is to stay off 15 meters, which so far hasn't been a great
>limitation.

Perhaps your electrician could help you lengthen the cable to add 1/8 wavelength to it? This could probably be done anywhere in the line and just might solve the whole problem nicely.

If any of our usenet readers has, or finds, a fix for GFI EMI, please let me know! I will personally carry it to our Hints and Kinks editor, who will probably publish it. If you get published in Hints and Kinks, you will not only be world famous, but we give you \$20 besides, not enough for a new rig, but it will probably pay for the ferrites. :-)

Good luck, and let me know if I can help,
73 from ARRL HQ, Ed

Ed Hare, KA1CV
American Radio Relay League
225 Main St.
Newington, CT 06111
(203) 666-1541 - voice
ARRL Laboratory Supervisor
RFI, xmtr and rcvr testing

ehare@arrl.org

"The goal of every engineer is to retire without getting blamed for a major catastrophe." -- Scott Adams and Dilbert

Date: 21 Jun 93 18:09:56 EST
From: titan.ksc.nasa.gov!k4dii.ksc.nasa.gov!user@ames.arpa
Subject: TM-742A extended rx coverage
To: info-hams@ucsd.edu

In article <1993Jun20.044331.28850@ausom.oz.au>, ans@ausom.oz.au (Andrew Squires) wrote:

> can anyone help me with a mod for extended rx coverage for
> a kenwood tm-742a dual band rig?

andy-

I understand the TM-742 uses the same modules as the TM-741. If so, data for extending 741 coverage may be applicable.

73, Fred, K4DII

fred-mckenzie@ksc.nasa.gov

Date: 23 Jun 1993 13:58:54 GMT

From: usc!howland.reston.ans.net!newsserver.jvnc.net!yale.edu!nigel.msen.com!
fmsrl7!lynx.unm.edu!dns1.NMSU.Edu!dante!mormsby@network.UCSD.EDU
Subject: Transverter help????????
To: info-hams@ucsd.edu

I have a two meter transverter that requires about 10 mw of power to drive it can anyone tell me how to cut the power down from a ts-440s so that I dont blow the thing into small fragments on my desk?? I wonder if there is a way to control alc with a pot and small 5 volt ps?? I know there are guys out there who have done mods etc..pse if you have any info email me.....

73s and thanks to all who help out>>>>>
Matt Ormsby mormsby@dante.nmsu.edu

Date: 23 Jun 93 11:09:32 EST
From: titan.ksc.nasa.gov!titan.ksc.nasa.gov!nntp@ames.arpa
Subject: Which Rig To Buy?
To: info-hams@ucsd.edu

I am looking for opinions on the Yaesu 1000 or 1000D versus the Kenwood TS-950SDX. Other comments are also welcomed!

I'm sure there are plans for other new rigs with DSP (digital signal processing) but does anyone have any insight as to when they might hit the market and what features they might employ?

Thanks in advance.....Randy WB8ZAL - KSC, Florida

Date: Wed, 23 Jun 93 11:58:24 GMT
From: pipex!uknet!uos-ee!ee.surrey.ac.uk!M.Willis@uunet.uu.net
To: info-hams@ucsd.edu

References <1993Jun22.061413.17345@news.tu-ilmenau.de>, <206u9d\$30l@cville-srv.wam.umd.edu>, <C915n4.MyH@amdcl2>
Subject : Re: Poor Operating Practice By 5A0RR

In article <C915n4.MyH@amdcl2>, brian@amdcl2.amd.com writes:
|> Scott Richard Rosenfeld writes:
|> >
|> > Still there would be no problem, if the world were perfect, and if a clear
|> > frequency REALLY were a clear frequency on BOTH ends of the QSO. If I'm
|> > in a QSO with a European station, and I'm talking when somebody calls
|> > a couple of brief QRL's, due to the proximity I may not be heard, and

|> > the guy in Europe won't really hear the QRL as he's not really listening
|> > for it. So the other American station starts using the frequency.
|> >
|> > Normally, this person would LISTEN on the Xmit frequency. However, in
|> > split operation, this third person isn't listening when my friend in
|> > Europe tells him that he's causing all kinds of QRM, and to please move.
|> > Using 100 kHz of the 20 meter band is STUPID because this kind of
|> > unavoidable effect happens a LOT, and on the busiest band there is.
|>
|> Clearly, then, if the contesting mobs descend upon your QSO and you
|> can't ask them to leave because they're not listening where they're
|> transmitting, then you should go to where they're listening and
|> politely tell them that they're transmitting on top of your QSO/net.
|>
|> :-) for the humor impaired
|>
|> 73,
|> Brian McMinn N5PSS brian.mcminn@amd.com

Answer is simple. 8877

Mike

Date: Wed, 23 Jun 93 13:34:31 GMT
From: walter!porthos!dancer!whs70@uunet.uu.net
To: info-hams@ucsd.edu

References <9306202222.AA02949@tecnet1.jcte.jcs.mil>,
<1993Jun21.141738.8573@porthos.cc.bellcore.com>,
<1993Jun22.153315.4826@n5ial.mythical.com>@
Subject : Re: [ANS] Wanted: Simple,Cheap,2m antenna project

In article <1993Jun22.153315.4826@n5ial.mythical.com> jim@n5ial.mythical.com (Jim Graham) writes:

>In article <1993Jun21.141738.8573@porthos.cc.bellcore.com>
>whs70@dancer.cc.bellcore.com (sohl,william h) writes:
>

>>About 2 or 3 months ago, QST had a do-it-yourself construction
>>article for a three element 2m beam, total cost of materials
>>was about \$8 plus the cost of Coax. It used brass rod (or welding
>>rods) and PVC pipe.

>
>Above the PVC pipe...I know PVC is a Bad Thing at HF, but what about VHF?
>Can you really get good results with it there? Or would a wooden dowel
>(see my post from yesterday on this) be a better thing to use?
>

>Also, now that rec.radio.amateur.antenna is up and running (YES!!!),
>should we perhaps migrate over there with this? Just a thought.

1. Why do you say PVC is bad at HF? It is certainly a nonconductor.
The use of PVC may have HF limits because of flexibility in long
large HF beams, but I'm unaware of any other PVC shortcomings.
2. I've dual posted this to the new antenna newsgroup as suggested.
3. Just received my July QST. It has two more inexpensive 2m antenna
designs. One for a permanent mounting at home and another for
portable operation (e.g. on vacation, etc.)

Standard Disclaimer- Any opinions, etc. are mine and NOT my employer's.

Bill Sohl (K2UNK) BELLCORE (Bell Communications Research, Inc.)
Morristown, NJ email via UUCP bcr!cc!whs70
201-829-2879 Weekdays email via Internet whs70@cc.bellcore.com

End of Info-Hams Digest V93 #769
